CONFERENCE ON DISARMAMENT

CD/958
23 January 1990

ENGLISH
Original: ARABIC

Ad hoc Committee on Chemical Weapons

EGYPT

Report on the National Trial Inspection

Introduction

1. Egypt conducted a national trial inspection (NTI) at one of its chemical plants in order to contribute to the success of international efforts aimed at a total ban on chemical weapons and the destruction of the stocks of such weapons, pursuant to the proposal of the Ad hoc Committee at its summer session in 1988.

2. It should be noted that Egypt neither possesses nor produces chemical weapons. The plant under inspection is fully capable of producing chemical weapons of all kinds, and the Egyptian delegation is ready to discuss this trial with other delegations at the Conference on Disarmament with a view to improving procedures for genuine routine inspection.

Preparations

3. The inspectors undertook to protect the confidentiality of technical information on production processes at the plant under trial inspection.

Objectives of the national trial inspection (NTI)

4. The principal objective of inspection was to verify the following:

(a) Whether data on the production and processing of the chemical substance to be inspected were consistent with the records;

(b) That the facility was not being used to produce any chemical listed in schedules [1] or [2];

(c) That the reaction could not be stopped at a specific stage with a view to producing another chemical listed in schedules [1] or [2].

The degree of realism of the NTI

5. In order to ensure the realistic and positive nature of the NTI, the following steps were taken:

(a) The facility to be inspected was notified of the time of the NTI only a short time before the start of the inspection;

(b) The inspection team was present at all times from the start of operation of the unit to be inspected until the information of the final product;

(c) The inspection team consulted the documents and records concerning the product under inspection in order to verify their consistency with the actual production.

Selection of the inspection team

6. The political, scientific and technical authorities were keen to make this trial a success. Therefore, it was essential that the inspection team should include a specialist in the chemical industries with practical experience in this field, the technical expert representing the Egyptian delegation during the drafting of the convention on chemical weapons, and a representative of the Egyptian Ministry of Foreign Affairs familiar with this subject. It was necessary to seek the help of some of the facility's personnel especially for the conduct of analyses under the supervision and control of the inspection team.

Selection of the facility

7. A multi-purpose facility in a chemical company belonging to the Ministry of Industry was selected for the conduct of the NTI. This facility is used basically for the production of limited quantities of various chemical products not included among the substances listed in schedules [1] and [2].

8. A multi-purpose unit was chosen to ensure the monitoring of the production stages from the start of the production process until the formation of the final product.

Selection of the chemical substance

9. Sodium toluene sulphonate (STS) was selected, although this substance is not included among substances listed in the chemical schedules annexed to the convention. However, for purposes of inspection and verification, it was regarded as being among the substances included in the draft convention.

The confidentiality of the NTI

10. In order to ensure the confidentiality of the information and data provided by the company to be inspected, it was agreed that the following conditions would be observed:

(a) Confidential business documents and technical records and information would be consulted only at the premises of the facility;

(b) As far as possible, only data stripped of information that might help to transfer the production technology to competing companies would be consulted;

(c) The inspection team would consist of Egyptian citizens only.

The conduct of the NTI

11. The NTI was conducted in accordance with the procedures laid down in document CD/213 as follows:

(a) Initial visit

The inspection team visited the plant to be inspected and met the responsible officials with a view to:

(i) Clarifying the objectives of the convention on the total prohibition of chemical weapons;

(ii) Determining the steps to be taken before, during and after the NTI in order to ensure its success;

(iii) Reaching agreement on the protection of the confidentiality of information and the manner in which it should be handled during the NTI;

(iv) Defining methods for the taking and analysis of samples;

(v) Listening to a complete explanation of the stages of the production of the chemical substance under inspection;

(vi) Designating the company's escort team;

(vii) Obtaining from the company an initial declaration containing information concerning the company, the chemicals produced in the multi-purpose unit to be inspected, and the quantities of the chemical substance under inspection that were produced during the year preceding the inspection;

(viii) It was agreed with the responsible officials at the plant that the time of commencement of the inspection would coincide with the date set for the commencement of production of a batch of the substance STS;

(ix) The company provided specific information concerning the facility and the chemical processes to be inspected.

(b) Conduct of the actual inspection

The inspection was conducted in accordance with article VI (2). The purpose of this type of inspection, known as "routine inspection", is to verify whether the actual production processes and the utilization of the facility correspond to the description in the declaration.

(c) Activity at the facility during the inspection

The inspection took place while the STS was being produced and stored. The inspectors were able to observe visually the most important operations in the production of this substance.

(d) Composition of the inspection team

The inspection team was made up as follows:

(i) A chemical expert representing the Ministry of Industry, Chemical Industries Sector;

(ii) A chemical expert, representing the Ministry of Defence;

(iii) A representative of the Ministry of Foreign Affairs;

(iv) The director of the company's research department;

(v) The production manager of the multi-purpose unit.

(e) Inspection equipment

The facility provided the inspection equipment (sampling and safety equipment). The use of safety equipment was obligatory in accordance with the safety regulations at the facility (safety goggles, masks, hard hats).

(f) Duration of inspection and initial visit

(i) Initial visit 1/2 day

(ii) Inspection 1 1/2 days

12. General description of the production process

(a) The multi-purpose unit at the facility under inspection produces 600-800 tonnes of the chemicals needed for the production process. The unit operates in accordance with a batch system. The inspection was carried out while the unit was producing STS.

(b) Toluene was transferred from tank "V-102" to the reaction vessel "R-101", where oleum was added to it from one of the two vessels "V-107" and "V-108". The sulphonation process was then carried out.

(c) The substance produced, which is an intermediate product, was poured into the vessel "V-105", where neutralization took place using sodium hydroxide, which resulted in the formation of the final product, which was pumped into the vessel "V-201".

(d) The product was then dried in order to assume its final form.

(e) A difference of 1/2 tonne (loss) in the quantity of toluene was observed on comparing the theoretical calculations with the actual measurements. The reasons for this were:

(i) The reaction does not take place to the extent of 100 per cent, resulting in a loss of 8.9 per cent.

(ii) A loss of 1.1 per cent is incurred during the neutralization and transportation processes.

Conclusion

The theoretical calculations correspond to the actual production, if the above-mentioned considerations are taken into account.

Samples and sample-taking procedures

13. A member of the facility personnel took the samples required by the inspectors as follows:

(a) Samples from the contents of the reactor, the tanks and the vessels connected with the reactor.

(b) Samples from the raw feedstock used for the production of STS.

(c) Random samples of the product STS.

(d) Samples from effluents at different points in the facility.

Sample handling and analysis

14. Each sample was recorded in a record book, allocated a code number, labelled and then opened in the facility's laboratory. Analysis was conducted by the facility's personnel in the presence of the inspectors. Simple descriptive methods for qualitative and quantitative analysis were applied, using the primitive analytical equipment available in the laboratory. No off-site analyses were carried out. All the results obtained confirmed the correctness of the chemical process at all its stages up to the formation of the final product.

Evaluation by the inspectors

15. The evaluation carried out by the inspectors included:

(a) The problems encountered;

(b) The usefulness of the inspection;

(c) The conclusions that could be drawn concerning the activities at the facility.

Closing conference

16. At the closing conference, the inspectors reviewed their on-site activities and their conclusions. The conference lasted about one hour.

The effect of inspection on the operations of the facility

17. The NTI had no noticeable effect on the operation of the plant. However, without the full co-operation between the facility personnel and the inspection team, the inspection would have impeded or even halted some of the operations. Moreover, the costs of inspection, in regard to the time taken and the efforts made by the facility personnel in the preparation of the initial declaration and their participation in the conduct of the NTI, must also be taken into consideration.

Conclusions and matters to be discussed further in regard to verification on a routine basis

18. In the course of the NTI, it became clear that several provisions of the draft convention concerning verification inspection on a routine basis require further discussion.

(a) Concerning multi-purpose facilities

How is it possible to determine the number, intensity, duration and timing of a verification inspection on a routine basis if the production process of the declared schedule [2] substance:

(i) can be shifted from one multi-purpose facility to another;

(ii) operates in batch mode;

(iii) is discontinuous by reason of factors relating to supply and demand?

Is there any means, other than checking mass balance at a subsequent inspection, to ascertain whether a declared activity has been carried out in the multi-purpose facility in the interval between inspections or during the inspection itself?

(b) Concerning the consultation of confidential information and protection of confidentiality

How is it possible to ensure that the inspectors respect the confidentiality of the information to which they have access and that they refrain from leaking it to competing companies?

To what extent would the inspected facility be entitled to take legal action in the event of the disclosure of its industrial secrets and, in such a case, who would be liable for the loss suffered by the facility?

(c) Concerning the inspection procedures themselves

It is well known that the process of producing a complete batch may take several days. Would it be necessary for the inspectors to monitor and observe the entire process?

To what extent would a company under inspection be required to bear the financial costs of the inspection?

The inspector cannot verify the correctness of the declaration concerning the production of the chemical substance without having access to the data concerning the chemical process and the standard operating procedures, which increases the degree of intrusiveness of the routine inspection of the facility.

The inspector cannot determine the necessity and timing of inspections and samplings if he is uncertain about the precise timing of the production batch and the stages of the production process, which increases the degree of intrusiveness of the routine inspection of the facility.